SEQUENCE LISTING

```
<110> DYAX Corp.
     Ley, Arthur C.
     Luneau, Christopher J.
     Ladner, Robert C
<120> NOVEL ENTEROKINASE CLEAVAGE SEQUENCES
<130> DYX-012.1 US, DYX-012.1 PCT
<140> not yet assigned
<141> 2001-06-19
<150> US 09/597,321
<151> 2000-06-19
<160> 217
<170> PatentIn version 3.1
<210> 1
<211> 9
<212> PRT
<213> synthetic enterokinase cleavage sequence
<220>
<221> MISC FEATURE
<222> (1)..(1)
<223> Xaal is an optional polypeptide of one or more amino acids
<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa2 is an optional amino acid which, if present, is Ala, Asp, Gl
       u, Phe, Gly, Ile, Asn, Ser, or Val
<220>
<221> MISC FEATURE
<222>
      (3)..(3)
<223> Xaa3 is an optional amino acid which, if present, is Ala, Asp, Gl
       u, His, Ile, Leu, Met, Gln or Ser
```

<220>

```
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa4 is an optional amino acid which, if present, is Asp, Glu, Ph
      e, His, Ile, Met, Asn, Pro, Val, or Trp
<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa5 is Ala, Asp, Glu, or Thr
<220>
<221> MISC FEATURE
<222> (8)..(8)
<223> Xaa8 is any amino acid
<220>
<221> MISC_FEATURE
<222> (9)..(9)
<223> Xaa9 is an optional polypeptide of at least one amino acid
<400> 1
Xaa Xaa Xaa Xaa Asp Arg Xaa Xaa
<210> 2
<211> 9
<212> PRT
<213> synthetic enterokinase cleavage sequence
<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa1 is an optional polypeptide of one or more amino acids
<220>
<221> MISC FEATURE
<222> (2)..(2)
<223> Xaa2 is an optional amino acid which, if present, is Asp or Glu
```

```
<220>
<221> MISC_FEATURE
<222> (3)..(3)
<223> Xaa3 is an optional amino acid which, if present, is Val
<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa4 is an optional amino acid which, if present, is Tyr
<220>
<221> MISC FEATURE
<222> (5)..(5)
<223> Xaa5 is Asp, Glu or Ser
<220>
<221> MISC_FEATURE
<222> (8)..(8)
<223> Xaa8 is any amino acid
<220>
<221> MISC_FEATURE
<222> (9)..(9)
<223> Xaa9 is an optional polypeptide of one or more amino acid
<400> 2
Xaa Xaa Xaa Xaa Glu Arg Xaa Xaa
<210> 3
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<220>
<221> MISC FEATURE
<222> (7)..(7)
 <223> Xaa is any amino acid
```

```
<400> 3
Asp Ile Asn Asp Asp Arg Xaa
<210> 4
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> Xaa is any amino acid
<400> 4
Gly Asn Tyr Thr Asp Arg Xaa
<210> 5
<211> 6
<212> PRT
<213> streptavidin binding sequence
<400> 5
Cys His Pro Gln Phe Cys
1
<210> 6
<211> 4
<212> PRT
<213> streptavidin binding sequence
<400> 6
His Pro Gln Phe
<210> 7
<211> 9
```

```
<212> PRT
<213> streptavidin binding sequence
<400> 7
Cys His Pro Gln Phe Cys Ser Trp Arg
<210> 8
<211> 6
<212> PRT
<213> enterokinase cleavage sequence
<220>
<221> MISC FEATURE
<222> (6)..(6)
<223> Xaa is Ile (natural trypsinogen site) or any amino acid (syntheti
       c cleavage sites)
<400> 8
Asp Asp Asp Lys Xaa
                5
<210> 9
<211> 86
<212> PRT
<213> exogenous display polypeptide of a phage display library
<220>
<221> MISC FEATURE
<222> (43)..(55)
<223> X is any amino acid except Cys
<400> 9
Ala Glu Trp His Pro Gln Phe Ser Ser Pro Ser Ala Ser Arg Pro Ser
                                                        15
                                    10
                5
Glu Gly Pro Cys His Pro Gln Phe Pro Arg Cys Tyr Ile Glu Asn Leu
                                                    30
                                25
            20
```

```
Asp Glu Phe Arg Pro Gly Gly Ser Gly Gly Xaa Xaa Xaa Xaa Xaa Xaa
                                               45
        35
                            40
Xaa Xaa Xaa Xaa Xaa Xaa Gly Ala Gln Ser Asp Gly Gly Ser
                        55
    50
Thr Glu His Ala Glu Gly Gly Ser Ala Asp Pro Ser Tyr Ile Glu Gly
                    70
                                        75
65
Arg Ile Val Gly Ser Ala
                85
<210> 10
<211>
       7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 10
Tyr Glu Trp Gln Asp Arg Thr
<210> 11
<211>
<212> PRT
       synthetic enterokinase cleavage sequence
<213>
<400> 11
Asn Ser Ile Lys Asp Arg Val
 <210> 12
 <211>
       7
 <212> PRT
       synthetic enterokinase cleavage sequence
 <400> 12
```

Ala Lys Ala Thr Glu Arg His

```
5
1
<210> 13
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 13
Leu Gly Lys Val Asp Arg Thr
1
<210> 14
<211>
      7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 14
Gly Gly Met Ala Asp Lys Phe
<210> 15
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 15
Gly His Trp Leu Asp Lys Asn
<210> 16
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 16
Asn Lys Ala Lys Asp Arg Met
```

```
<210> 17
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 17
Ser Glu Asn Phe Asp Lys Asn
<210> 18
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 18
Leu Asp Trp Glu Asp Arg Ala
1
<210> 19
<211>
       7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 19
Ser Thr Asp Ala Glu Arg Met
<210> 20
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 20
His Thr Phe Ser Asp Arg Gln
<210> 21
<211> 7
<212> PRT
```

```
<213> synthetic enterokinase cleavage sequence
<400> 21
Gly Ser Gly Gly Asp Arg Leu
<210> 22
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 22
Gly Phe Tyr Asn Asp Arg Met
                5
<210> 23
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 23
Ile Met Pro Gln Asp Lys Ser
1
<210> 24
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 24
Gly Gly Val Glu Asp Arg Ser
 <210> 25
 <211> 7
 <212> PRT
 <213> synthetic enterokinase cleavage sequence
 <400> 25
```

```
Trp Gln Glu Ser Asp Arg Ala
<210> 26
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 26
Gly Ser Gly Gly Asp Arg His
1
<210> 27
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 27
Gly His Ile Phe Asp Arg Ser
<210> 28
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 28
Gly Ser Gly Gly Glu Lys Leu
 <210> 29
 <211> 7
 <212> PRT
 <213> synthetic enterokinase cleavage sequence
 <400> 29
 Ser Gly Gly Glu Asp Arg Met
```

```
<210> 30
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 30
Gly Ser Gly Gly Glu Arg Thr
                5
<210> 31
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 31
Pro Asp Pro Gln Glu Arg Gln
                5
<210> 32
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 32
Tyr Ile Met Gly Asp Arg Thr
1
                5
<210> 33
 <211> 7
 <212> PRT
<213> synthetic enterokinase cleavage sequence
 <400> 33
 Gln Asn His Ser Asp Arg Thr
 <210> 34
```

```
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 34
Ile Ala His Gly Glu Arg Ala
<210> 35
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 35
His Glu Met Asn Asp Arg His
                5
1
<210> 36
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 36
Thr His Asn Gly Glu Lys Met
<210> 37
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 37
His Asp Glu Ala Glu Lys Thr
1
 <210> 38
 <211> 7
 <212> PRT
 <213> synthetic enterokinase cleavage sequence
```

```
<400> 38
Gly Tyr Trp Ile Asp Arg Ser
               5
<210> 39
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 39
Gly Ser Gly Gly Glu Arg Leu
1
                5
<210> 40
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 40
Ser Gly Gly Ser Asp Arg Leu
                5
<210> 41
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 41
Ala Gln Tyr Met Asp Leu Met
                5
 1
 <210> 42
 <211> 7
 <212> PRT
 <213> synthetic enterokinase cleavage sequence
 <400> 42
```

```
Gly Ser Gly Glu Arg Asn
<210> 43
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 43
Gly Ser Gly Gly Glu Asn Gly
<210> 44
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 44
Glu Asn Tyr Glu Glu Arg Thr
                5
1
<210> 45
<211>
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 45
Asn Ile Tyr Gly Asp Arg Ile
                5
 1
 <210> 46
 <211> 7
 <212> PRT
 <213> synthetic enterokinase cleavage sequence
 <400> 46
 Gly Gly Phe Val Asp Lys Gln
                 5
```

```
<210> 47
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 47
Gly Ser Gly Gly Glu Lys Val
<210> 48
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 48
Gly Lys Phe Glu Asp Arg Asn
<210> 49
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 49
Pro Ala His Thr Asp Arg Asp
                5
1
<210> 50
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 50
Gln Gln Met His Asp Arg Phe
 1
 <210> 51
 <211> 7
```

```
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 51
Asp Met Gly Tyr Asp Arg Gly
<210> 52
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 52
Ser Gly Gly Asp Glu Lys Glu
<210> 53
<211> 7
<212> PRT
       synthetic enterokinase cleavage sequence
<213>
<400> 53
Ile Glu Ser Ala Asp Arg Thr
 <210> 54
 <211> 7
 <212> PRT
 <213> synthetic enterokinase cleavage sequence
 <400> 54
 Arg Asn Met Asp Glu Arg Ala
                 5
 <210> 55
 <211>
       7
 <212> PRT
 <213> synthetic enterokinase cleavage sequence
```

```
<400> 55
Thr Val Gly Met Asp Lys Phe
<210> 56
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 56
Gly Ser Gly Gly Asp Arg Phe
<210> 57
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 57
Arg His Asn Tyr Asp Arg Ile
<210> 58
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 58
Val Tyr His Val Asp Lys Met
<210> 59
 <211> 7
 <212> PRT
 <213> synthetic enterokinase cleavage sequence
 <400> 59
 Gly Ser Gly Gly Glu Arg Asn
```

```
1
               5
<210> 60
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 60
Gly Gly Lys Tyr Asp Arg Met
<210> 61
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 61
Gly Gly Asn Asp Asp Lys Met
<210> 62
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 62
Ala Ala Val Glu Asp Arg Asn
<210> 63
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 63
Pro Cys Lys Asp Glu Arg Phe
               5
```

```
<210> 64
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 64
Gly Ser Glu Leu Asp Arg Met
<210> 65
<211>
      7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 65
Phe Ser Glu Glu Asp Arg Met
<210> 66
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 66
Gly Ser Gly Gly Glu Arg Phe
<210> 67
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 67
Tyr Gln Pro Thr Asp Arg Thr
               5
<210> 68
<211> 7
<212> PRT
```

```
<213> synthetic enterokinase cleavage sequence
<400> 68
Ser Gly Gly Glu Asp Arg Met
<210> 69
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 69
Thr Glu Gln Met Asp Arg Met
<210> 70
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 70
Gln Pro Phe Asp Asp Arg Asp
<210> 71
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 71
Gly Ser Gly Gly Glu Arg Thr
<210> 72
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 72
```

```
Glu Gly Met Thr Asp Arg Leu
<210> 73
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 73
Glu Ile Pro Glu Asp Arg Met
<210> 74
<211> 7
<212> PRT
<213> natural enterokinase cleavage sequence
<400> 74
Gly Asp Asp Asp Lys Ile
<210> 75
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 75
Gly Ser Gly Glu Arg Ser
<210> 76
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 76
His Gly Tyr Glu Glu Arg Met
```

```
<210> 77
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 77
Lys Pro Met Glu Glu Arg Met
                5
<210> 78
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 78
Ser Gly Gly Asn Asp Arg Met
<210> 79
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 79
Gly Gly Thr Asp Asp Arg Phe
<210> 80
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 80
Asp Val Tyr Ser Glu Arg Met
<210> 81
```

```
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 81
Asp Val Tyr Ser Glu Arg Met
                5
<210> 82
<211>
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 82
Gly Ser Gly Gly Asp Arg Asn
                5
<210> 83
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 83
Asp Val Thr Ala Asp Asp Arg
               5
<210> 84
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 84
Ala Glu Phe Ala Asp Arg Phe
1
               5
<210> 85
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
```

```
<400> 85
Asn Asn Ser Asp Glu Lys Ile
1
               5
<210> 86
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 86
Pro Gly Gly Asp Asp Arg Trp
1
               5
<210> 87
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 87
Ser Gly Gly Glu Glu Arg Val
1
                5
<210> 88
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 88
Val Trp Pro Asp Asp Arg Ser
                5
<210> 89
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 89
```

```
His Arg Gln Thr Asp Arg Met
<210> 90
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 90
Lys Glu Ala Glu Asp Arg Ala
<210> 91
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 91
Val Gly Asp Asp Glu Arg His
               5
<210> 92
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 92
Asn Ser Met Ala Asp Arg Asn
<210> 93
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 93
Thr Glu Phe Glu Asp Lys Trp
```

```
<210> 94
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 94
Glu Ser Gly Glu Arg Asp
<210> 95
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 95
Asn Asn Tyr Trp Asp Arg Met
<210> 96
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 96
Phe Ser Glu Glu Asp Arg Met
               5
<210> 97
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 97
Glu Met His Glu Glu Arg Met
               5
<210> 98
<211> 7
```

```
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 98
Asp Gln Met Glu Asp Arg Gln
<210> 99
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 99
Glu Trp Lys Met Asp Arg Met
<210> 100
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 100
Ser Tyr Thr Trp Asp Arg Ser
<210> 101
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 101
Ser Phe Met Leu Asp Arg Met
1
                5
<210> 102
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
```

```
<400> 102
Thr Glu Val Asp Asp Arg His
<210> 103
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 103
Gly Asp Gln Glu Asp Arg Met
<210> 104
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 104
His Asn Ile Asp Asp Arg Ile
<210> 105
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 105
Ala Ser Trp Glu Asp Arg Thr
1
<210> 106
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 106
Gly Gly Glu Asp Asp Arg Ser
```

```
1
              5
<210> 107
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 107
Asp Ile Gln Asp Glu Arg Asn
<210> 108
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 108
Asp Thr His Ala Asp Lys Ser
               5
<210> 109
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 109
Gly Ser Gly Gly Asp Arg Met
<210> 110
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 110
Gly Glu Ile Met Asp Arg Ser
```

```
<210> 111
 <211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 111
Gly Ser Gly Gly Asp Lys Thr
<210> 112
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 112
Gly Ser Gly Gly Asp Arg Ala
<210> 113
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 113
Gly Asp His Leu Asp Arg Met
<210> 114
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 114
Gly Gln Gln Asp Asp Arg Gln
<210> 115
<211> 7
<212> PRT
```

```
<213> synthetic enterokinase cleavage sequence
<400> 115
Ala Leu Ala Ala Asp Arg Met
1
<210> 116
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 116
Val Gly Phe Asp Asp Arg Thr
<210> 117
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 117
Tyr Ala Gln Asp Glu Arg Thr
<210> 118
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 118
Gly Gly Arg Glu Glu Arg Asn
<210> 119
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 119
```

```
Gly Ser Gly Gly Asp Arg Met
<210> 120
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 120
Gly Ser Gly Gly Asp Arg Glu
                5
<210> 121
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 121
Ile Ala Tyr Gln Asp Arg Met
<210> 122
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 122
Ser Gly Gly Glu Asp Arg Ala
<210> 123
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 123
Leu Glu His Ser Asp Arg Val
```

```
<210> 124
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 124
Phe Lys Pro Asp Asp Arg Met
<210> 125
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 125
Val Pro Met Ala Asp Arg Ser
<210> 126
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 126
Gly Ser Gly Glu Arg Ala
<210> 127
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 127
Asn Asp Asn Asp Glu Arg Ala
<210> 128
```

```
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 128
Gly Asn Tyr Thr Asp Arg Met
                5
<210> 129
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 129
Gly Ser Gly Gly Glu Arg Val
<210> 130
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 130
Asp Glu Val His Asp Arg Thr
                5
<210> 131
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 131
Gln His Asp Gly Asp Lys Thr
<210> 132
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
```

```
<400> 132
Thr Val Arg Ser Glu Lys Gly
<210> 133
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 133
Ser Gly Gly Thr Asp Arg Ile
                5
<210> 134
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 134
Val Met Glu Asp Asp Arg Ala
<210> 135
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 135
Gly Ser Gly Gly Glu Arg Met
               5
<210> 136
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 136
```

```
Ile Glu His Asp Asp Arg Met
1
<210> 137
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 137
Phe Ser Glu Glu Asp Arg Met
1
<210> 138
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 138
Phe Ser Glu Glu Asp Arg Met
1
<210> 139
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 139
Asp Val Tyr Ser Glu Arg Met
                5
<210> 140
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 140
Asp Met Phe Asp Asp Arg Met
               5
```

```
<210> 141
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 141
Phe Ser Glu Glu Asp Arg Met
<210> 142
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 142
Glu His Leu Phe Asp Arg Met
<210> 143
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 143
Ser Trp Ile Ser Asp Arg Val
1
<210> 144
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 144
Asn Asp Glu Asp Asp Arg Met
<210> 145
<211> 7
```

```
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 145
Ser Leu Asp Asp Asp Arg Thr
<210> 146
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 146
Gly Ser Gly Gly Asp Arg Asp
<210> 147
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 147
Pro His Ile Glu Asp Arg Met
<210> 148
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 148
Ser Gly Gly Asp Asp Arg His
1
                5
<210> 149
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
```

```
<400> 149
Glu Val Phe Ala Asp Arg Ser
<210> 150
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 150
Gly Leu Ala Glu Asp Arg Thr
<210> 151
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 151
Ser Gly Gly Asp Asp Arg Leu
<210> 152
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 152
Ser Gly Gly Asp Asp Arg Met
1
                5
<210> 153
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 153
Gly Leu Val Ser Glu Arg Gly
```

```
1
                5
<210> 154
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 154
Gly Gly Phe Glu Asp Lys Met
<210> 155
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 155
Ser Leu Asp Asp Asp Arg Thr
<210> 156
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 156
Asp Val Tyr Ser Glu Arg Met
<210> 157
<211>
      7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 157
Asn Met Asp Trp Asp Arg Ser
```

```
<210> 158
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 158
Ser Leu Asp Asp Asp Arg Thr
                5
<210> 159
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 159
Gly Ser Gly Gly Asp Arg Met
<210> 160
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 160
Phe Ser Glu Glu Asp Arg Met
<210> 161
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 161
Ser Leu Asp Asp Asp Arg Thr
<210> 162
<211> 7
<212> PRT
```

```
<213> synthetic enterokinase cleavage sequence
<400> 162
Val Asp Met His Asp Arg Met
<210> 163
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 163
Ser Gly Gly Asp Asp Arg Met
                5
<210> 164
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 164
Asn Val Arg Met Asp Arg Ser
<210> 165
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 165
Ser His Arg Asp Glu Lys Val
<210> 166
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 166
```

```
Leu Met Asn Asp Asp Arg Ala
<210> 167
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 167
Phe Val Met Asn Asp Lys Gly
                5
<210> 168
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 168
Val Ser Asp Asp Asp Arg Ala
<210> 169
<211>
      7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 169
Gly His Val Asp Asp Arg Met
<210> 170
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 170
His Ala Ile Glu Glu Arg Ser
```

```
<210> 171
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 171
Asp Ile Asn Asp Asp Arg Ser
                5
<210> 172
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 172
Gly Ser Gly Gly Glu Arg Thr
                5
<210> 173
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 173
Ala Val Ile Gly Asp Arg Ser
<210> 174
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 174
Ser Gly Gly Glu Glu Arg Gly
<210> 175
```

```
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 175
Val Glu Phe Tyr Asp Arg Met
                5
<210> 176
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 176
Gly Ser Gly Gly Glu Arg Ile
                5
<210> 177
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 177
Ser Leu Asp Asp Asp Arg Thr
                5
<210> 178
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 178
Ser Gly Gly Gln Glu Arg Ser
<210> 179
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
```

```
<400> 179
Asp Ile Asn Asp Asp Arg Ser
1
<210> 180
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 180
Asp His Val Trp Asp Arg Ala
                5
<210> 181
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 181
Gly Ser Gly Gly Asp Arg Ile
<210> 182
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 182
Ile Glu Asp Glu Asp Arg Ala
                5
<210> 183
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 183
```

```
Met Thr Phe Asp Glu Arg Gly
1
<210> 184
<211> 7
<212> PRT
<213>
      synthetic enterokinase cleavage sequence
<400> 184
Gly Asp Trp Asp Asp Lys Asn
               5
<210> 185
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 185
Ile Ala Tyr Gln Asp Arg Met
<210> 186
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 186
Gly Ser Gly Gly Asp Arg Ile
1
<210> 187
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 187
Gly Phe Val Gln Glu Arg Met
                5
1
```

```
<210> 188
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 188
Asp Ile Asn Asp Asp Arg Ser
<210> 189
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 189
Gly Trp Asn Asp Asp Arg Ile
<210> 190
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 190
Gly Gly Phe Glu Asp Arg Leu
               5
<210> 191
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 191
Gly Ser Gly Gly Asp Arg Asn
1
<210> 192
<211> 7
```

```
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 192
Ala Ala Val Glu Asp Arg Asn
<210> 193
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 193
Asp Tyr Arg Leu Asp Arg Ile
<210> 194
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 194
Gly Asp Asp Asp Lys Ile
<210> 195
<211> 13
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 195
Asp Arg Met Tyr Gln Leu Asp Lys Thr Gly Phe Met Ile
1
                5
                                   10
<210> 196
<211> 13
<212> PRT
<213> synthetic enterokinase cleavage sequence
```

```
<400> 196
Ala Val Leu Ser Asn Val Met His Ser Asp Asp Trp Thr
<210> 197
<211> 9
<212> PRT
<213> natural enterokinase cleavage sequence
<400> 197
Gly Asp Asp Asp Lys Ile Tyr Val
<210> 198
<211> 9
<212> PRT
<213> negative control in EK cleavage experiment
<400> 198
Ala Val Leu Ser Asn Val Met Phe Ile
<210> 199
<211> 9
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 199
Gly Asn Tyr Thr Asp Arg Met Phe Ile
<210> 200
<211> 9
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 200
Asp Ile Asn Asp Asp Arg Ser Leu Phe
```

```
5
1
<210> 201
<211>
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 201
Asn Lys Ala Lys Asp Arg Met Phe Ile
<210> 202
<211> 9
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 202
Gly Asn Tyr Thr Asp Arg Arg Phe Ile
<210> 203
<211> 9
<212> PRT
      commercial synthetic enterokinase cleavage substrate
<213>
<400> 203
Gly Asn Tyr Thr Asp Arg Tyr Phe Ile
                5
<210> 204
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Xaa is any amino acid
```

```
<400> 204
Asp Ile Asn Asp Asp Arg Xaa
<210>
       205
<211>
       7
<212> PRT
       synthetic enterokinase cleavage sequence
<213>
<220>
<221> MISC FEATURE
<222>
      (7)..(7)
<223> Xaa is any amino acid
<400> 205
Gly Asn Tyr Thr Asp Arg Xaa
       206
<210>
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaal is an optional amino acid which, if present, is Ala, Asp, Gl
       u, Phe, Gly, Ile, Asn, Ser, or Val
<220>
<221> MISC FEATURE
<222> (2)..(2)
       Xaa2 is an optional amino acid which, if present, is Ala, Asp, Gl
<223>
       u, His, Ile, Leu, Met, Gln, or Ser
<220>
<221> MISC FEATURE
<222>
      (3)..(3)
<223> Xaa3 is an optional amino acid which, if present, is Asp, Glu, Ph
       e, His, Ile, Met, Asn, Pro, Val, or Trp
```

```
<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa4 is Ala, Asp, Glu, or Thr
<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> Xaa7 is any amino acid
<400> 206
Xaa Xaa Xaa Asp Arg Xaa
<210> 207
<211> 7
<212> PRT
<213> synthetic enterokinase cleavage sequence
<220>
<221> MISC FEATURE
<222> (1)..(1)
<223> Xaal is an optional amino acid which, if present, is Asp or Glu
<220>
<221> MISC FEATURE
<222> (2)..(2)
<223> Xaa2 is an optional amino acid which, if present, is Val
<220>
<221> MISC_FEATURE
<222> (3)..(3)
<223> Xaa3 is an optional amino acid which, if present, is Tyr
<220>
<221> MISC FEATURE
<222> (4)..(4)
<223> Xaa4 is Asp, Glu or Ser
```

```
<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> Xaa7 is any amino acid
<400> 207
Xaa Xaa Xaa Glu Arg Xaa
<210> 208
<211> 6
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 208
Asp Ile Asn Asp Asp Arg
<210> 209
<211> 6
<212> PRT
<213> synthetic enterokinase cleavage sequence
<400> 209
Gly Asn Tyr Thr Asp Arg
<210> 210
<211> 7
<212> PRT
<213> streptavidin binding sequence
<400> 210
Trp His Pro Gln Phe Ser Ser
                5
```

```
211
<210>
<211>
      10
      PRT
<212>
<213> streptavidin binding sequence
<400> 211
Pro Cys His Pro Gln Phe Pro Arg Cys Tyr
```

<210> 212 <211> 1272 DNA <212> Bacteriophage M13mp18 <213>

212 <400> gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctca ctccgctgaa 60 actgttgaaa gttgtttagc aaaaccccat acagaaaatt catttactaa cgtctggaaa 120 gacgacaaaa ctttagatcg ttacgctaac tatgagggtt gtctgtggaa tgctacaggc 180 gttgtagttt gtactggtga cgaaactcag tgttacggta catgggttcc tattgggctt 240 300 gctatccctg aaaatgaggg tggtggctct gagggtggcg gttctgaggg tggcggttct 360 gagggtggcg gtactaaacc tcctgagtac ggtgatacac ctattccggg ctatacttat atcaaccctc tcgacggcac ttatccgcct ggtactgagc aaaaccccgc taatcctaat 420 ccttctcttg aggagtctca gcctcttaat actttcatgt ttcagaataa taggttccga 480 aataggcagg gggcattaac tgtttatacg ggcactgtta ctcaaggcac tgaccccgtt 540 aaaacttatt accagtacac teetgtatea teaaaageea tgtatgaege ttaetggaae 600 ggtaaattca gagactgcgc tttccattct ggctttaatg aagatccatt cgtttgtgaa 660 tatcaaggcc aatcgtctga cctgcctcaa cctcctgtca atgctggcgg cggctctggt 720 ggtggttctg gtggcggctc tgagggtggt ggctctgagg gtggcggttc tgagggtggc 780 ggctctgagg gaggcggttc cggtggtggc tctggttccg gtgattttga ttatgaaaag 840 atggcaaacg ctaataaggg ggctatgacc gaaaatgccg atgaaaacgc gctacagtct 900

gacgctaaag	gcaaacttga	ttctgtcgct	actgattacg	gtgctgctat	cgatggtttc	960
attggtgacg	tttccggcct	tgctaatggt	aatggtgcta	ctggtgattt	tgctggctct	1020
aattcccaaa	tggctcaagt	cggtgacggt	gataattcac	ctttaatgaa	taatttccgt	1080
caatatttac	cttccctccc	tcaatcggtt	gaatgtcgcc	cttttgtctt	tagcgctggt	1140
aaaccatatg	aattttctat	tgattgtgac	aaaataaact	tattccgtgg	tgtctttgcg	1200
tttcttttat	atgttgccac	ctttatgtat	gtattttcta	cgtttgctaa	catactgcgt	1260
aataaggagt	ct					1272

<210> 213

<211> 424

<212> PRT

<213> Bacteriophage M13mp18

<400> 213

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser 1 5 10 15

His Ser Ala Glu Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu 20 25 30

Asn Ser Phe Thr Asn Val Trp Lys Asp Asp Lys Thr Leu Asp Arg Tyr 35 40 45

Ala Asn Tyr Glu Gly Cys Leu Trp Asn Ala Thr Gly Val Val Val Cys 50 55 60

Thr Gly Asp Glu Thr Gln Cys Tyr Gly Thr Trp Val Pro Ile Gly Leu 65 70 75 80

Ala Ile Pro Glu Asn Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu 85 90 95

Gly Gly Gly Ser Glu Gly Gly Gly Thr Lys Pro Pro Glu Tyr Gly Asp

100 105 110

Thr Pro Ile Pro Gly Tyr Thr Tyr Ile Asn Pro Leu Asp Gly Thr Tyr 115 120 125

Pro Pro Gly Thr Glu Gln Asn Pro Ala Asn Pro Asn Pro Ser Leu Glu 130 135 140

Glu Ser Gln Pro Leu Asn Thr Phe Met Phe Gln Asn Asn Arg Phe Arg 145 150 155 160

Asn Arg Gln Gly Ala Leu Thr Val Tyr Thr Gly Thr Val Thr Gln Gly 165 170 175

Thr Asp Pro Val Lys Thr Tyr Tyr Gln Tyr Thr Pro Val Ser Ser Lys 180 185 190

Ala Met Tyr Asp Ala Tyr Trp Asn Gly Lys Phe Arg Asp Cys Ala Phe 195 200 205

His Ser Gly Phe Asn Glu Asp Pro Phe Val Cys Glu Tyr Gln Gly Gln 210 215 220

Ser Ser Asp Leu Pro Gln Pro Pro Val Asn Ala Gly Gly Gly Ser Gly 225 230 235 240

Gly Gly Ser Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly 245 250 255

Ser Glu Gly Gly Ser Glu Gly Gly Gly Ser Gly Gly Ser Gly 260 265 270

Ser Gly Asp Phe Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala 275 280 285

Met	Thr 290	Glu	Asn	Ala	Asp	Glu 295	Asn	Ala	Leu	Gln	Ser 300	Asp	Ala	Lys	Gly	
Lys 305	Leu	Asp	Ser	Val	Ala 310	Thr	Asp	Tyr	Gly	Ala 315	Ala	Ile	Asp	Gly	Phe 320	
Ile	Gly	Asp	Val	Ser 325	Gly	Leu	Ala	Asn	Gly 330	Asn	Gly	Ala	Thr	Gly 335	Asp	
Phe	Ala	Gly	Ser 340	Asn	Ser	Gln	Met	Ala 345	Gln	Val	Gly	Asp	Gly 350	Asp	Asn	
Ser	Pro	Leu 355	Met	Asn	Asn	Phe	Arg 360	Gln	Tyr	Leu	Pro	Ser 365	Leu	Pro	Gln	
Ser	Val 370		Cys	Arg	Pro	Phe 375	Val	Phe	Ser	Ala	Gly 380		Pro	Tyr	Glu	
Phe 385		Ile	Asp	Cys	Asp 390	Lys	Ile	: Asn	Leu	Phe 395	: Arg	Gly	Val	Phe	Ala 400	
Phe	Leu	. Leu	Tyr	Val 405		Thr	Phe	e Met	Tyr 410		. Phe	s Ser	Thr	Phe 415	e Ala	
Asn	. Ile	. Leu	Arg 420		. Lys	Glu	. Ser	î								
	1>		erio	ophag	ge Ml	.3mp1	. 8									
		214 cctg	agta	acggt	ga t	acac	cctat	et co	cgggd	ctata	a ctt	tatat	caa	ccct	tctcgac	60
															tgaggag	120
tct	cago	cctc	ttaa	atact	tt d	catgt	ttca	ag aa	ataat	caggi	t tc	cgaaa	atag	gca	gggggca	180

ttaactgttt	atacgggcac	tgttactcaa	ggcactgacc	ccgttaaaac	ttattaccag	240
tacactcctg	tatcatcaaa	agccatgtat	gacgcttact	ggaacggtaa	attcagagac	300
tgcgctttcc	attctggctt	taatgaagat	ccattcgttt	gtgaatatca	aggccaatcg	360
tctgacctgc	ctcaacctcc	tgtcaatgct	ggcggcggct	ctggtggtgg	ttctggtggc	420
ggctctgagg	gtggtggctc	tgagggtggc	ggttctgagg	gtggcggctc	tgagggaggc	480
ggttccggtg	gtggctctgg	ttccggtgat	tttgattatg	aaaagatggc	aaacgctaat	540
aagggggcta	tgaccgaaaa	tgccgatgaa	aacgcgctac	agtctgacgc	taaaggcaaa	600
cttgattctg	tcgctactga	ttacggtgct	gctatcgatg	gtttcattgg	tgacgtttcc	660
ggccttgcta	atggtaatgg	tgctactggt	gattttgctg	gctctaattc	ccaaatggct	720
caagtcggtg	acggtgataa	ttcaccttta	atgaataatt	tccgtcaata	tttaccttcc	780
ctccctcaat	cggttgaatg	tcgccctttt	gtctttagcg	ctggtaaacc	atatgaattt	840
tctattgatt	gtgacaaaat	aaacttattc	cgtggtgtct	ttgcgtttct	tttatatgtt	900
qccaccttta	tgtatgtatt	ttctacgttt	gctaacatac	tgcgtaataa	ggagtct	957

<210> 215

<211> 319

<212> PRT

<213> Bacteriophage M13mp18

<400> 215

Lys Pro Pro Glu Tyr Gly Asp Thr Pro Ile Pro Gly Tyr Thr Tyr Ile 1 5 10 15

Asn Pro Leu Asp Gly Thr Tyr Pro Pro Gly Thr Glu Gln Asn Pro Ala 20 25 30

Asn Pro Asn Pro Ser Leu Glu Glu Ser Gln Pro Leu Asn Thr Phe Met 35 40 45

Phe Gln Asn Asn Arg Phe Arg Asn Arg Gln Gly Ala Leu Thr Val Tyr 50 55 60

Thr Gly Thr Val Thr Gln Gly Thr Asp Pro Val Lys Thr Tyr Tyr Gln 65 70 75 80

Tyr Thr Pro Val Ser Ser Lys Ala Met Tyr Asp Ala Tyr Trp Asn Gly 85 90 95

Lys Phe Arg Asp Cys Ala Phe His Ser Gly Phe Asn Glu Asp Pro Phe 100 105 110

Val Cys Glu Tyr Gln Gly Gln Ser Ser Asp Leu Pro Gln Pro Pro Val 115 120 125

Asn Ala Gly Gly Gly Ser Gly Gly Ser Gly Gly Gly Ser Glu Gly 130 135 140

Gly Gly Ser Glu Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly 145 150 155 160

Gly Ser Gly Gly Gly Ser Gly Ser Gly Asp Phe Asp Tyr Glu Lys Met 165 170 175

Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn Ala Asp Glu Asn Ala 180 185 190

Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser Val Ala Thr Asp Tyr 195 200 205

Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val Ser Gly Leu Ala Asn 210 215 220

Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser Asn Ser Gln Met Ala 225 230 235 240

Gln	Val	Gly	Asp	Gly	Asp	Asn	Ser	Pro	Leu	Met	Asn	Asn	Phe	Arg	Gln
				245					250					255	

Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys Arg Pro Phe Val Phe 260 265 270

Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp Cys Asp Lys Ile Asn 275 280 285

Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr Val Ala Thr Phe Met 290 295 300

Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg Asn Lys Glu Ser 305 310 315

<210> 216 <211> 450 <212> DNA

<213> Bacteriophage M13mp18

<400> 216 60 gattttgatt atgaaaagat ggcaaacgct aataaggggg ctatgaccga aaatgccgat gaaaacgcgc tacagtctga cgctaaaggc aaacttgatt ctgtcgctac tgattacggt 120 gctgctatcg atggtttcat tggtgacgtt tccggccttg ctaatggtaa tggtgctact 180 ggtgattttg ctggctctaa ttcccaaatg gctcaagtcg gtgacggtga taattcacct 240 300 ttaatgaata atttccgtca atatttacct tccctccctc aatcggttga atgtcgccct tttgtcttta gcgctggtaa accatatgaa ttttctattg attgtgacaa aataaactta 360 ttccgtggtg tctttgcgtt tcttttatat gttgccacct ttatgtatgt attttctacg 420 450 tttgctaaca tactgcgtaa taaggagtct

<210> 217 <211> 150

<212> PRT

<213> Bacteriophage M13mp18

<400> 217

Asp Phe Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr 1 5 10 15

Glu Asn Ala Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu 20 25 30

Asp Ser Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly 35 40 45

Asp Val Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala 50 55 60

Gly Ser Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro 75 80

Leu Met Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val 85 90 95

Glu Cys Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser 100 105 110

Ile Asp Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu 115 120 125

Leu Tyr Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile 130 135 140

Leu Arg Asn Lys Glu Ser 145 150